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the outside surface being composed of a first material, at least a portion of the first end of the inside surface being composed of a second material;
the first material having a first predetermined hardness, the second material having a second predetermined hardness, the second predetermined hardness having a higher durometer value than the first predetermined hardness.

Remarks

This office action imposes a restriction requirement; objects to the specification and claims; rejects claims under §112 and rejects claims 1-5 and 9-12 under §102(e) by Willard US 5980530. Claim 6 was objected to, but indicated as being allowable if rewritten to include all limitations from the base claim and any intervening claims.

Applicant affirms the provisional election made to claims 1-6 and 9-12. Applicant has also amended claims 2, 3, 4, 9, and 10 to overcome the objections to the claims and the 112 rejection to claim 2.

Applicant has amended claims 1, 11 and 12 to require that the inner surface be comprised of the second material – which distinguishes over Willard where only the portion of the inside surface comprised of the ring material comprises the second material.

Applicant has also added new claim 13, which distinguishes over Willard in that the sleeve has a uniform diameter – which distinguishes over Willard where the portion of the sleeve which includes the ring has a different thickness than the rest of the sleeve.

Claims 1-6 and 9-13 are now believed to be in condition for allowance. Claim 6 has also been rewritten in independent form.

Respectfully submitted,

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Marked-Up Text

The following are marked up versions of claims 1-4:

1. A stent delivery system comprising:
a catheter including a stent mounting region;
a stent disposed about the stent mounting region of the catheter, the stent having a distal end and a proximal end, the stent further having an unexpanded state and an expanded state, and
at least one stent retaining sleeve, the at least one stent retaining sleeve having an inside surface and an outside surface and a first end and a second end,
the first end overlying an end of the stent when the stent is in the unexpanded state, the second end engaged to at least a portion of the catheter adjacent to the stent mounting region;
the outside surface being composed of a first material, [at least a portion of the first end of] and the inside surface being composed of a second material;
the first material having a first predetermined hardness, the second material having a second predetermined hardness, the second predetermined hardness having a higher durometer value than the first predetermined hardness.
2. The stent delivery catheter of claim 1 wherein the second material is [relatively] smoother than the first material.
3. The stent delivery catheter of claim 1 [where in] wherein the first predetermined hardness is less than approximately 55D, and the second predetermined hardness is least 55D.
4. The stent delivery catheter of claim 1 [where in] wherein the first predetermined hardness is approximately 35D, and the second predetermined hardness is approximately 55D.

The following is a marked up version of claim 6 rewritten in independent form:

6. [The stent delivery catheter of claim 1] A stent delivery system comprising:
a catheter including a stent mounting region;
a stent disposed about the stent mounting region of the catheter, the stent having a distal end and a proximal end, the stent further having an unexpanded state and an expanded state, and
at least one stent retaining sleeve, the at least one stent retaining sleeve having an inside surface and an outside surface and a first end and a second end,
the first end overlying an end of the stent when the stent is in the unexpanded state, the second end engaged to at least a portion of the catheter adjacent to the stent mounting region;
the outside surface being composed of a first material, at least a portion of the first end of the inside surface being composed of a second material;
the first material having a first predetermined hardness, the second material having a second predetermined hardness, the second predetermined hardness having a higher durometer value than the first predetermined hardness
wherein the first material and the second material are co-extruded.

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The following are marked up versions of claims 9-12:

9. The stent delivery system of claim 1 wherein the first material is constructed from at least one member of the group consisting of: styrenic block copolymers, polyurethanes, silicone rubber, natural rubber, copolyesters, polyamides, EPDM rubber/polyolefin, nitril rubber/PVC, fluoroelastomers, butyl rubber, epichlorohydrin, polyester elastomers, polyamide elastomers and any combination[s] thereof.

10. The stent delivery system of claim 1 wherein the second material is constructed from at least one member of the group consisting of: polyolefins, polystyrene, polyvinyl chloride, acrylonitrile-butadiene-styrene polymers, polyacrylonitrile, polyacrylate, vinyl acetate polymer, cellulose plastics, polyurethanes, polyethylene terephthalate, polyacetal, polyethers, polycarbonates, polyamides, polyphenylene sulfide, polyarylethersulfones, polyaryletherketones, polytetrafluoroethylene, and any combination[s] thereof.

11. A stent retaining sleeve for retaining stent ends on a balloon catheter comprising:
a first material and a second material, wherein the first material has a first predetermined hardness and the second material has a second predetermined hardness, the second predetermined hardness being greater than the first predetermined hardness;
the stent retaining sleeve having an inside surface and an outside surface, and a first end and a second end, the inside surface of the first end constructed and arranged to overlay an end of a stent, the second end constructed and arranged to be in contact with at least a portion of a catheter;
[at least a portion of] the inside surface of the first end being composed of the second material.

12. A stent delivery system comprising:
a catheter including a stent mounting region;
a stent disposed about the stent mounting region of the catheter, the stent having a distal end and a proximal end, the stent further having an unexpanded state and an expanded state, and
at least one stent retaining sleeve, the at least one stent retaining sleeve having a first end and a second end, the first end overlying an end of the stent when the stent is in the unexpanded state, the second end engaged to at least a portion of the catheter adjacent to the stent mounting region;
the at least one sleeve having an inside surface and an outside surface, [at least a portion of] the inside surface characterized as being harder than the outside surface.

The following is new claim 13:

13. A stent delivery system comprising:
a catheter including a stent mounting region;
a stent disposed about the stent mounting region of the catheter, the stent having a distal end and a proximal end, the stent further having an unexpanded state and an expanded state, and

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at least one stent retaining sleeve, the at least one stent retaining sleeve having an inside surface and an outside surface and a first end and a second end, the at least one stent retaining sleeve having a uniform thickness,

the first end overlying an end of the stent when the stent is in the unexpanded state, the second end engaged to at least a portion of the catheter adjacent to the stent mounting region;

the outside surface being composed of a first material, at least a portion of the first end of the inside surface being composed of a second material;

the first material having a first predetermined hardness, the second material having a second predetermined hardness, the second predetermined hardness having a higher durometer value than the first predetermined hardness.